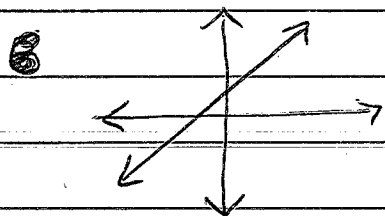


2.2 SLOPE AND RATE OF CHANGE

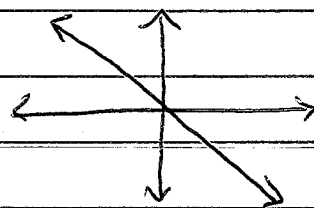
Ex 1 FIND THE SLOPE OF THE LINE
PASSING THROUGH (2, 4) AND (8, 6)

$$m = \frac{y_2 - y_1}{x_2 - x_1} \quad m = \frac{4 - 6}{2 - 8} = \frac{-2}{-6} = \boxed{\frac{1}{3}}$$



positive slope ($m > 0$)

line rises from left to right



negative slope ($m < 0$)

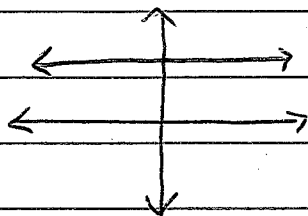
line falls from left to right

Homework

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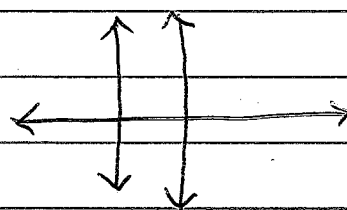
20-31,

37-40



zero slope ($m = 0$)

horizontal line



undefined slope (m is undefined)

vertical line

Without graphing, tell whether the lines ~~are~~ rises, falls, is horizontal, or is vertical.

Ex 2 (7, 5) AND (-3, 9)

$$m = \frac{9 - 5}{-3 - 7} = \frac{4}{-10} = -\frac{2}{5} < 0 \quad \boxed{\text{falls}}$$

Try

Ex 3 (8, 6) AND (7, 6)

$$m = \frac{6 - 6}{8 - 7} = \frac{0}{1} = 0 \quad \boxed{\text{horizontal}}$$

TELL WHICH LINE IS STEEPER BY COMPARING ^{THE ABSOLUTE VALUES OF THEIR} ~~THE~~ SLOPES

Ex 4. LINE 1: (5, -4) & (2, 3) $\frac{3 - (-4)}{2 - 5} = -\frac{7}{3}$

LINE 2: (10, 8) & (8, 7) $\frac{8 - 7}{10 - 8} = \frac{1}{2}$

LINE 1 IS STEEPER

COMPARE ABSOLUTE VALUES OF SLOPES